US008992271B2

(12) **United States Patent**
Harasawa et al.

(10) **Patent No.: US 8,992,271 B2**
(45) **Date of Patent: Mar. 31, 2015**

(54) **ELECTRICAL TERMINAL**

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 24 days.

(21) Appl. No.: **13/955,329**

(22) Filed: **Jul. 31, 2013**

(65) **Prior Publication Data**

US 2014/0038475 A1 Feb. 6, 2014

(30) **Foreign Application Priority Data**

Jul. 31, 2012 (JP) 2012-169949

(51) **Int. Cl.**

H01R 4/24	(2006.01)
H01R 4/10	(2006.01)
H01R 4/50	(2006.01)
H01R 13/629	(2006.01)

(52) **U.S. Cl.**

CPC ***H01R 4/10*** (2013.01); ***H01R 4/5008*** (2013.01); ***H01R 4/5041*** (2013.01); ***H01R 4/5075*** (2013.01); *H01R 13/62927* (2013.01)

USPC **439/879**; 439/421

(58) **Field of Classification Search**

USPC 439/879, 421, 442, 882

See application file for complete search history.

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(74) *Attorney, Agent, or Firm* — Barley Snyder

(57) **ABSTRACT**

An electrical terminal is provided and includes a first member and a second member. The first member includes a pair of connecting face portions, a coupling portion, and a plurality of serrations. The pair of connecting face portions face each other in a substantially V shape such that a gap between inner faces of the pair of connecting face portions gradually becomes smaller from a wider-gap side to a narrower-gap side. The coupling portion connects the pair of connecting face portions at ends of the narrower-gap side of the inner faces. The plurality of serrations are disposed on the pair of inner faces and extend along intersecting directions. The second member has a substantially U shape that mates with the pair of connecting face portions and can displace outer side faces of the pair of connecting face portions inward to urge the inner faces closer to each other.

14 Claims, 12 Drawing Sheets

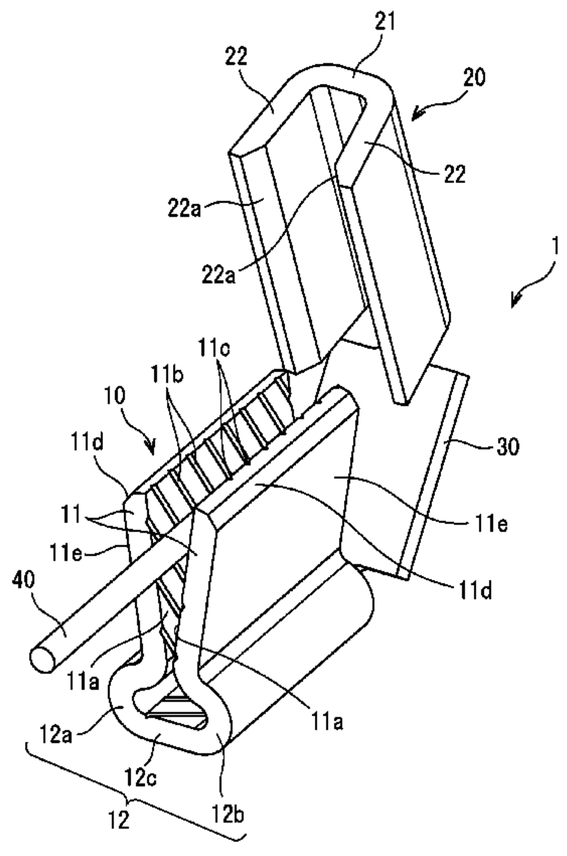

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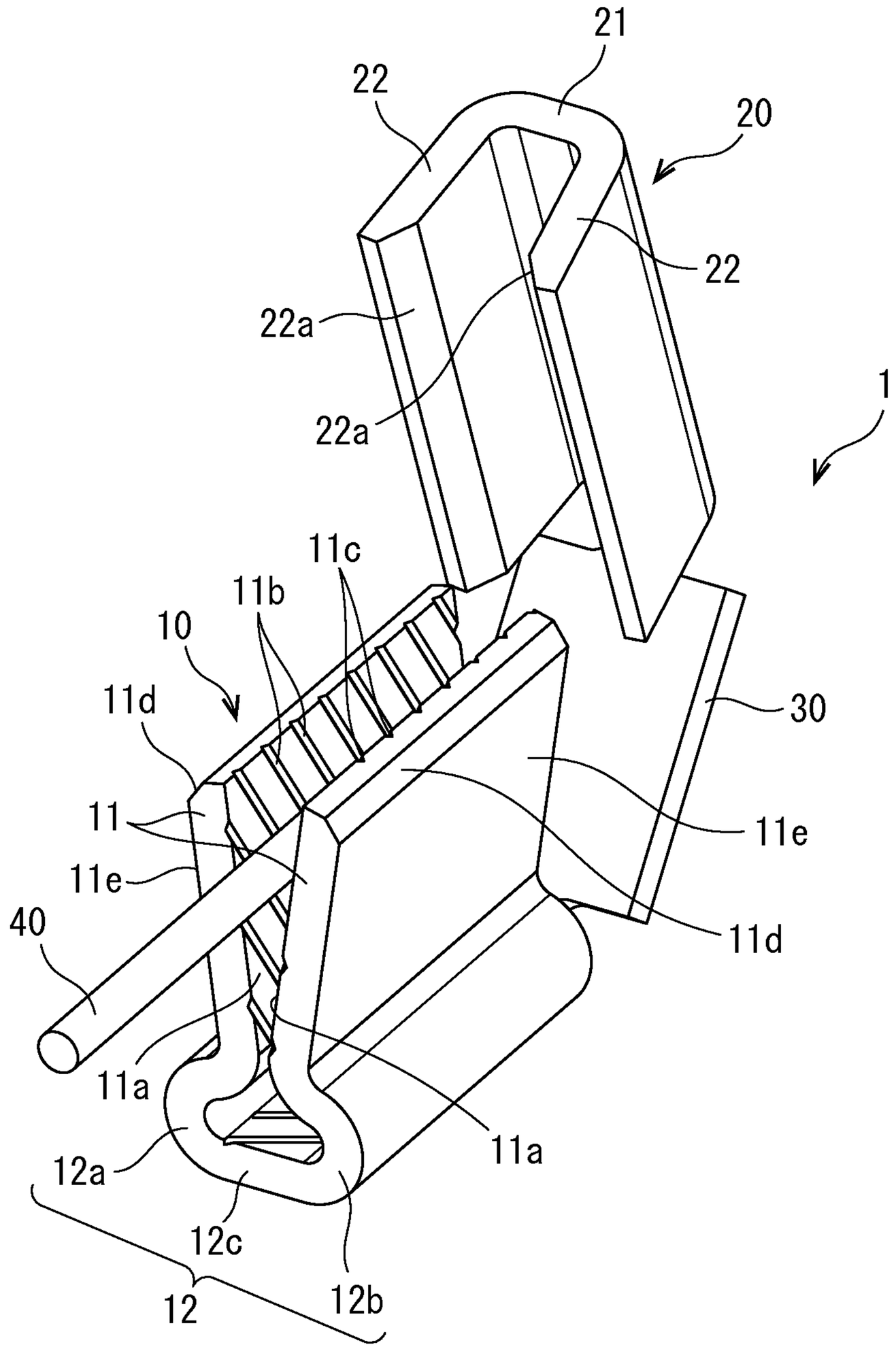
FIG. 1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22
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22
22a
22a
1
11c
11b
10
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11e
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40
11d
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12a
12c
12
12b

FIG. 2

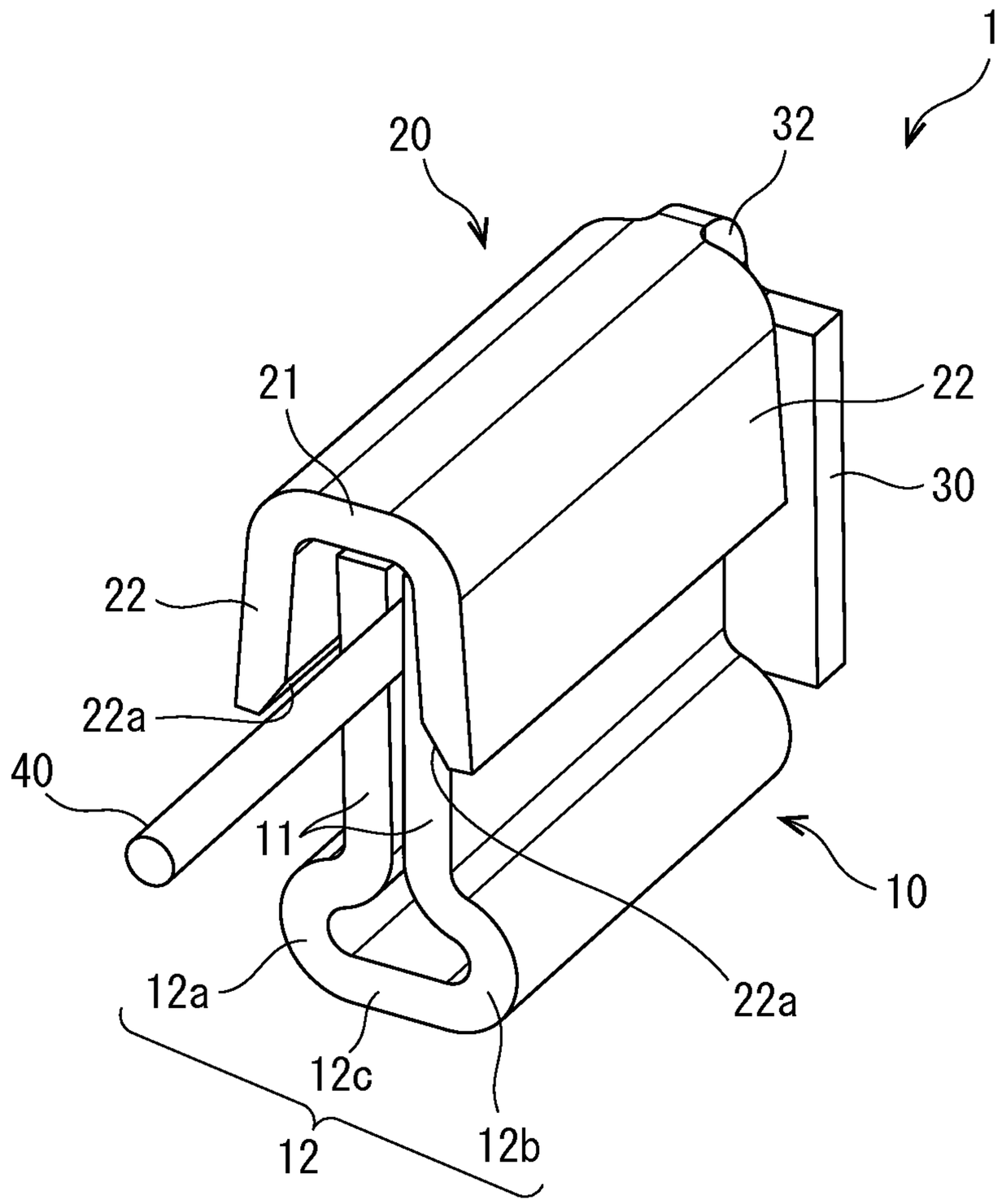
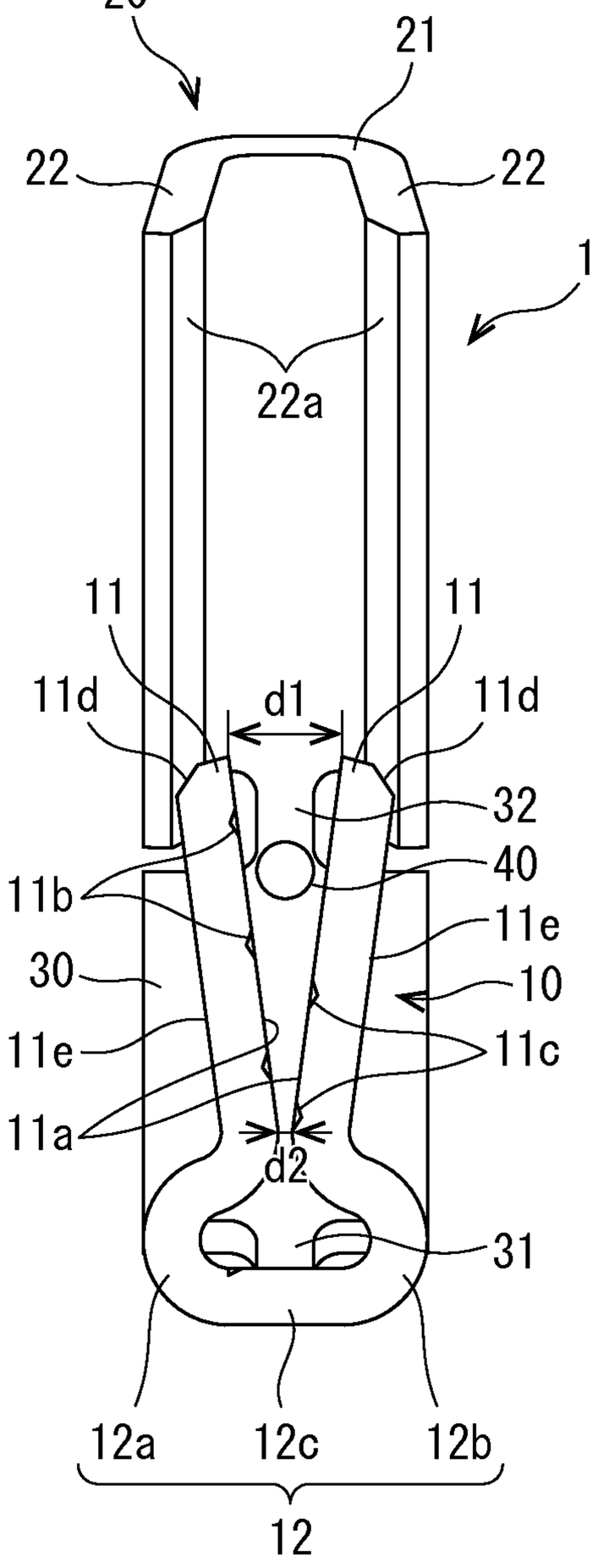


FIG. 3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22
22
1
22a
11
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11d
d1
11d
32
40
11b
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11e
11c
11a
d2
31
12a
12c
12b
12

FIG. 4

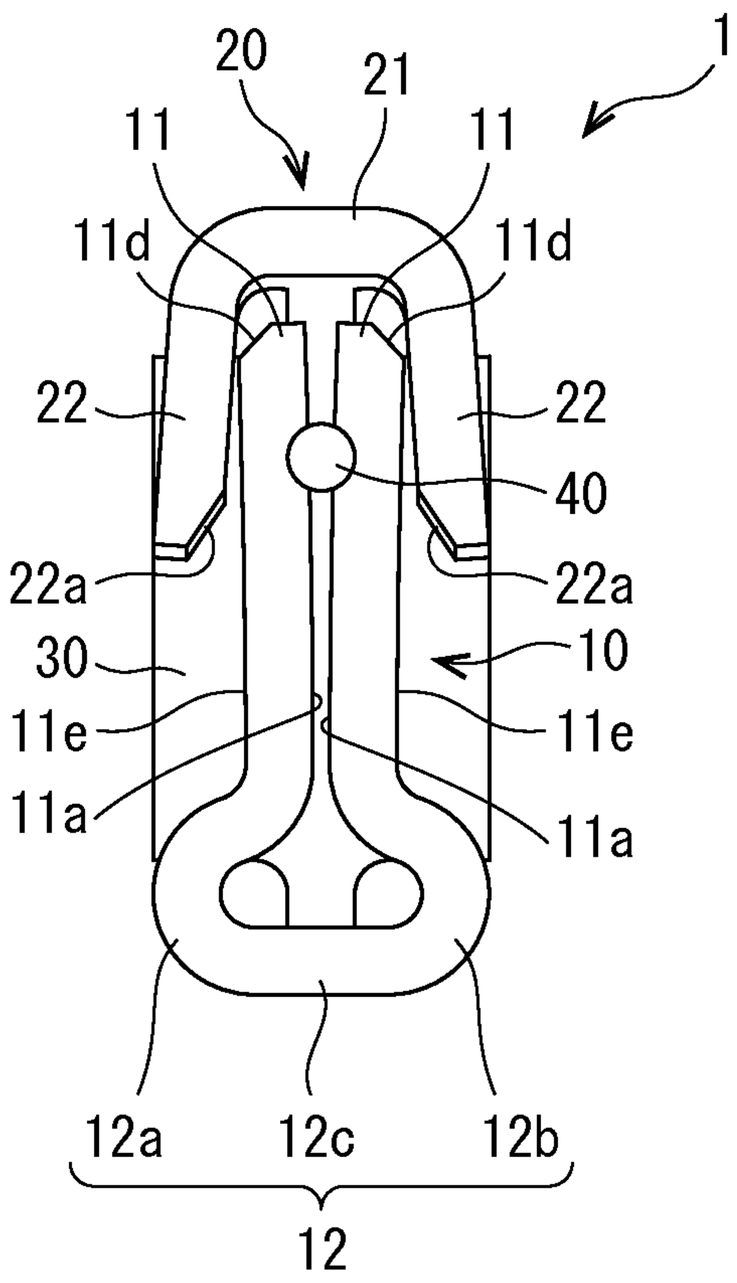
1
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FIG. 5

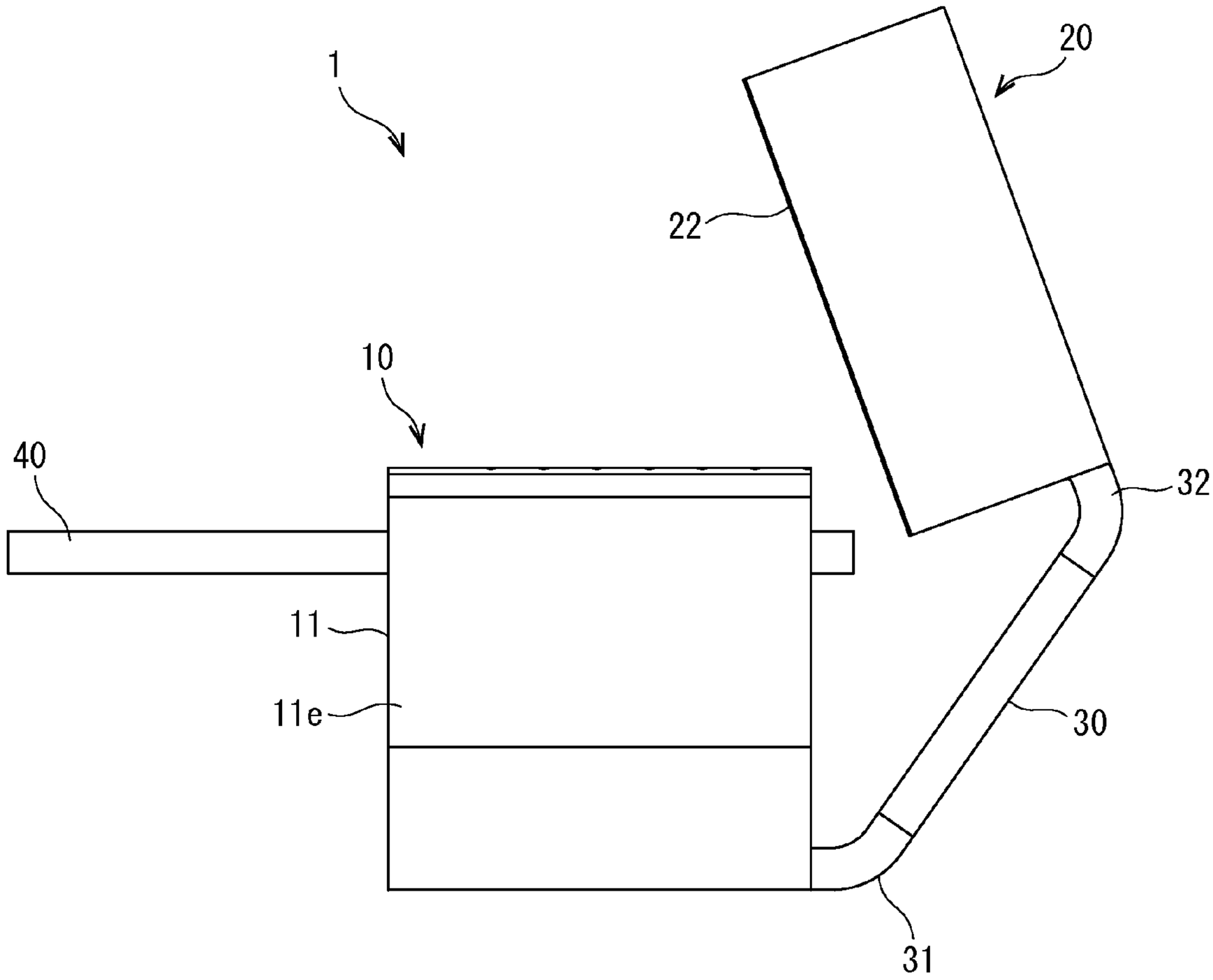


FIG. 6

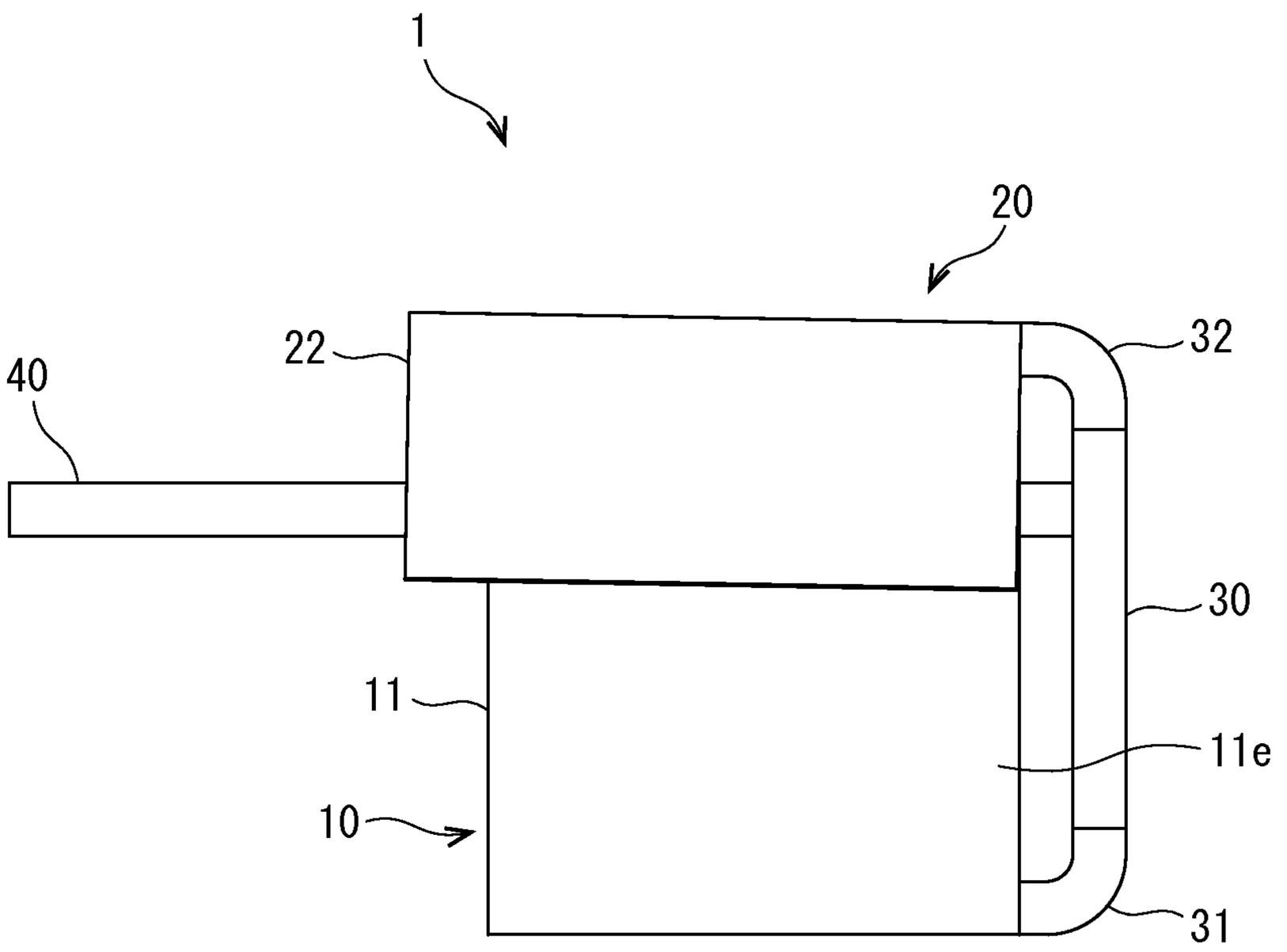


FIG. 7C

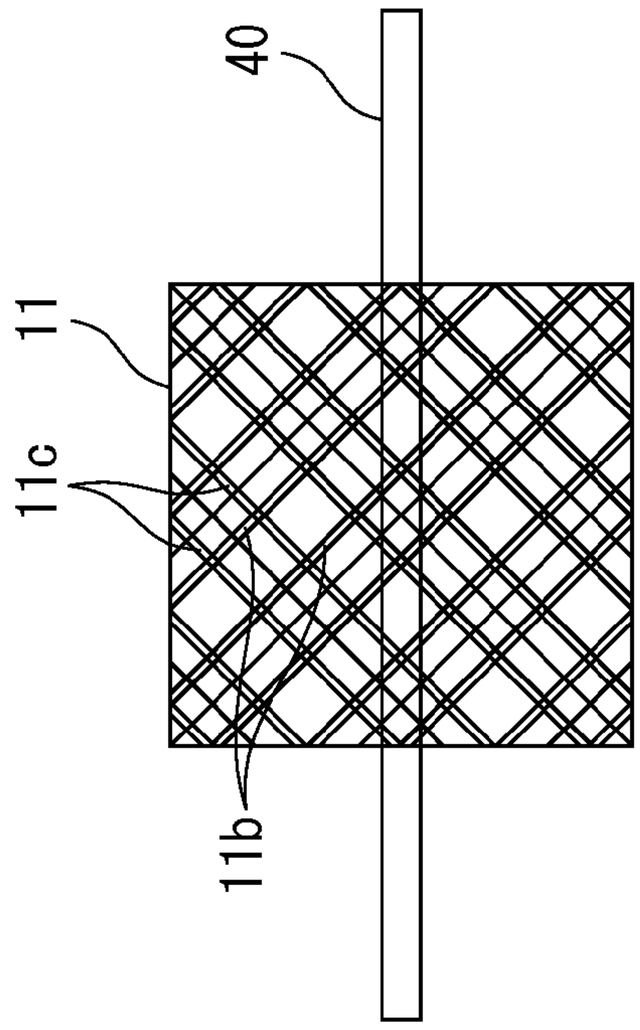


FIG. 7B

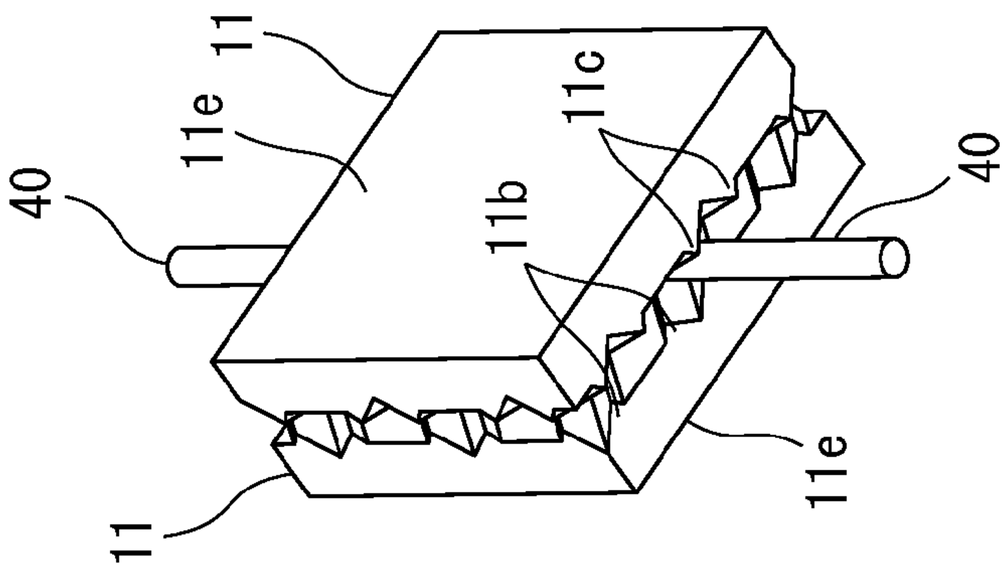


FIG. 7A

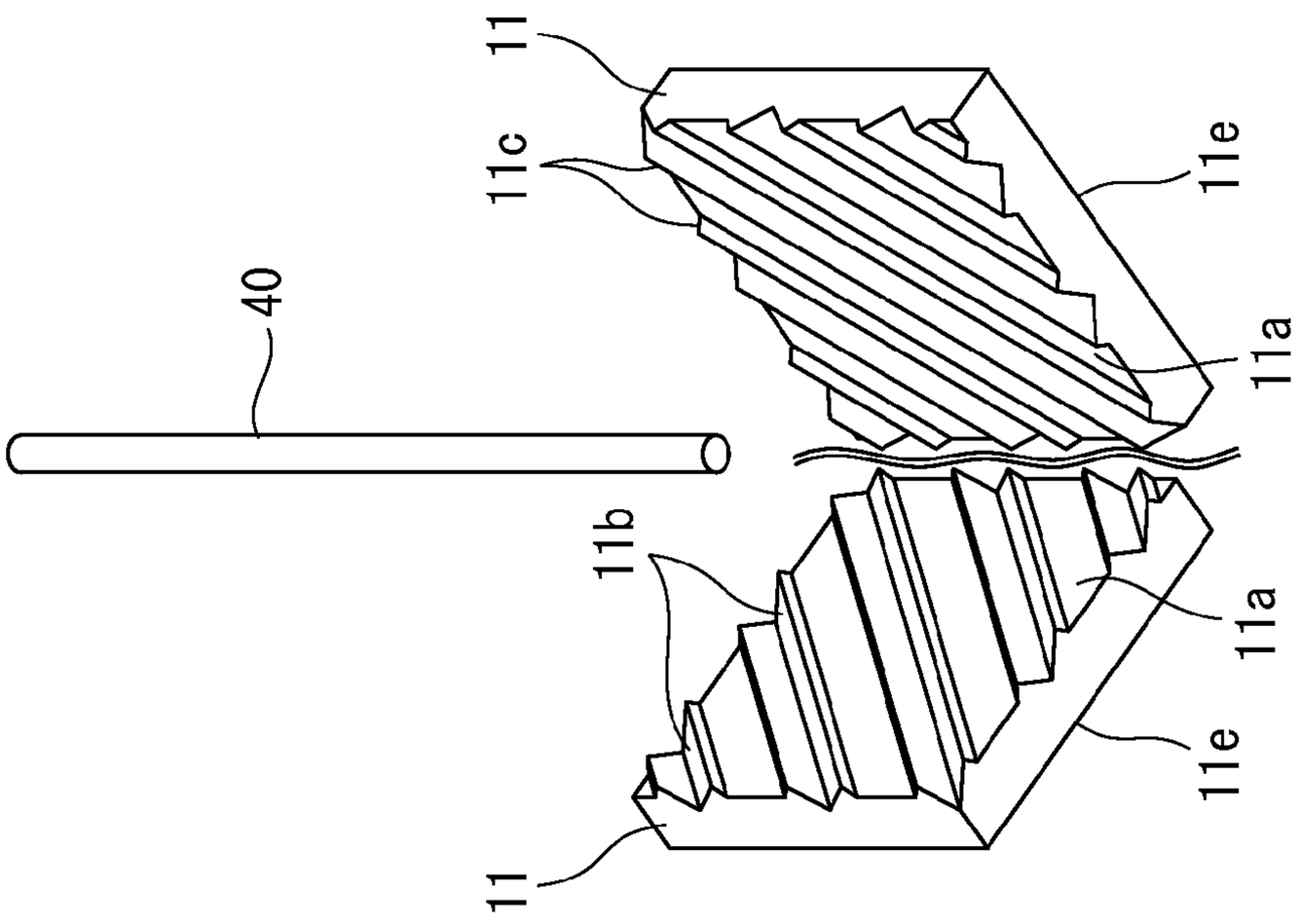


FIG. 8A

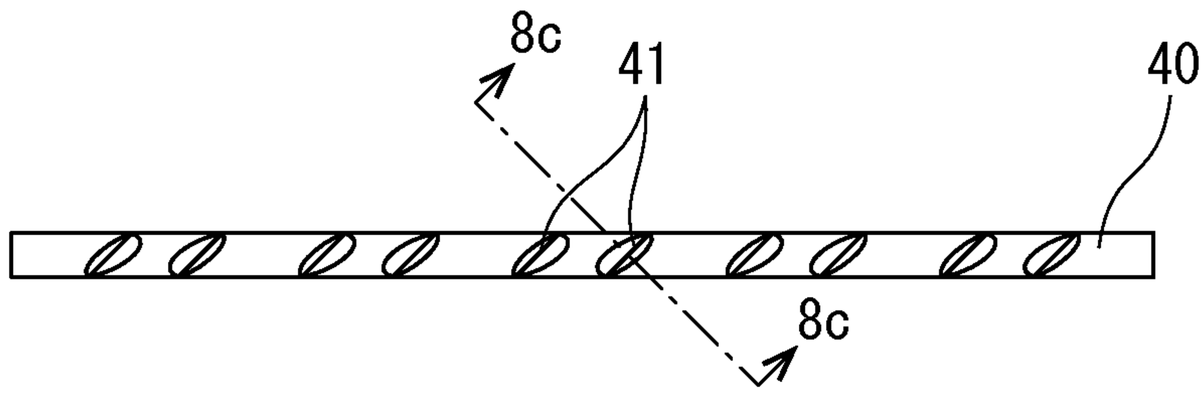


FIG. 8B

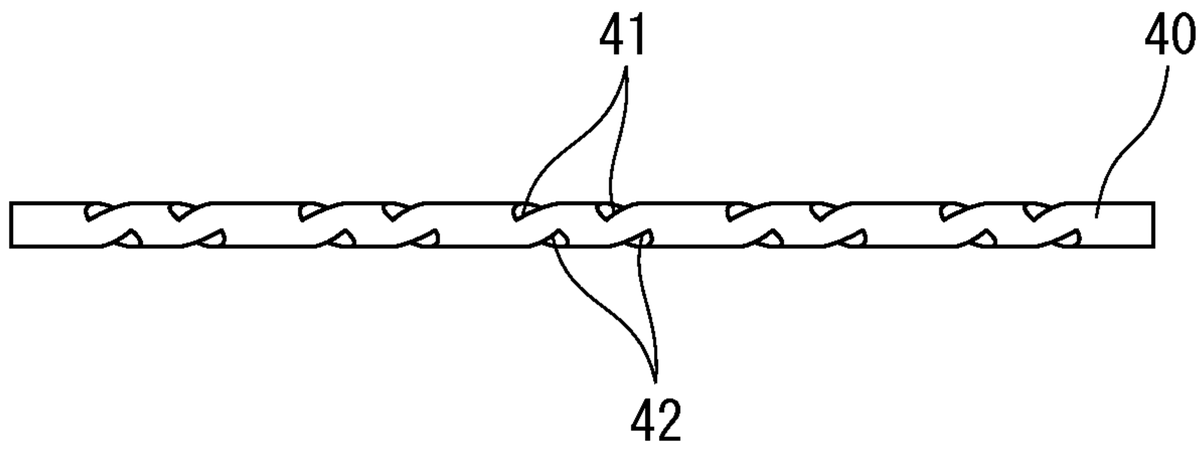


FIG. 8C

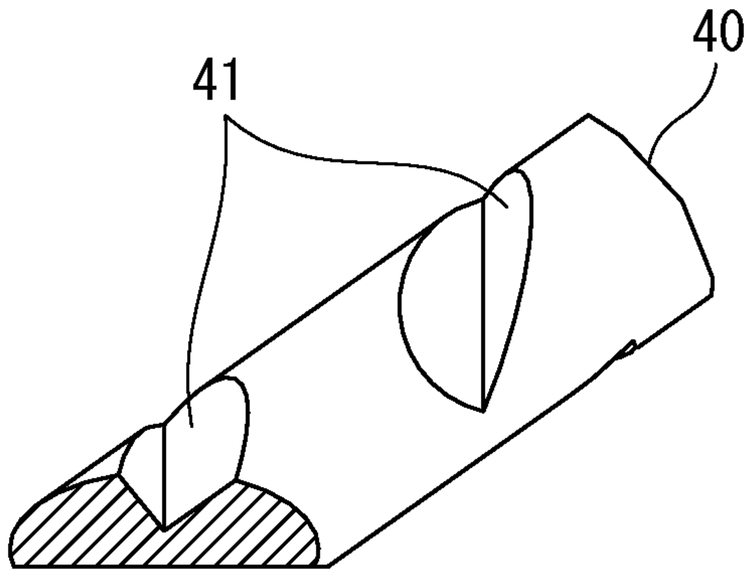
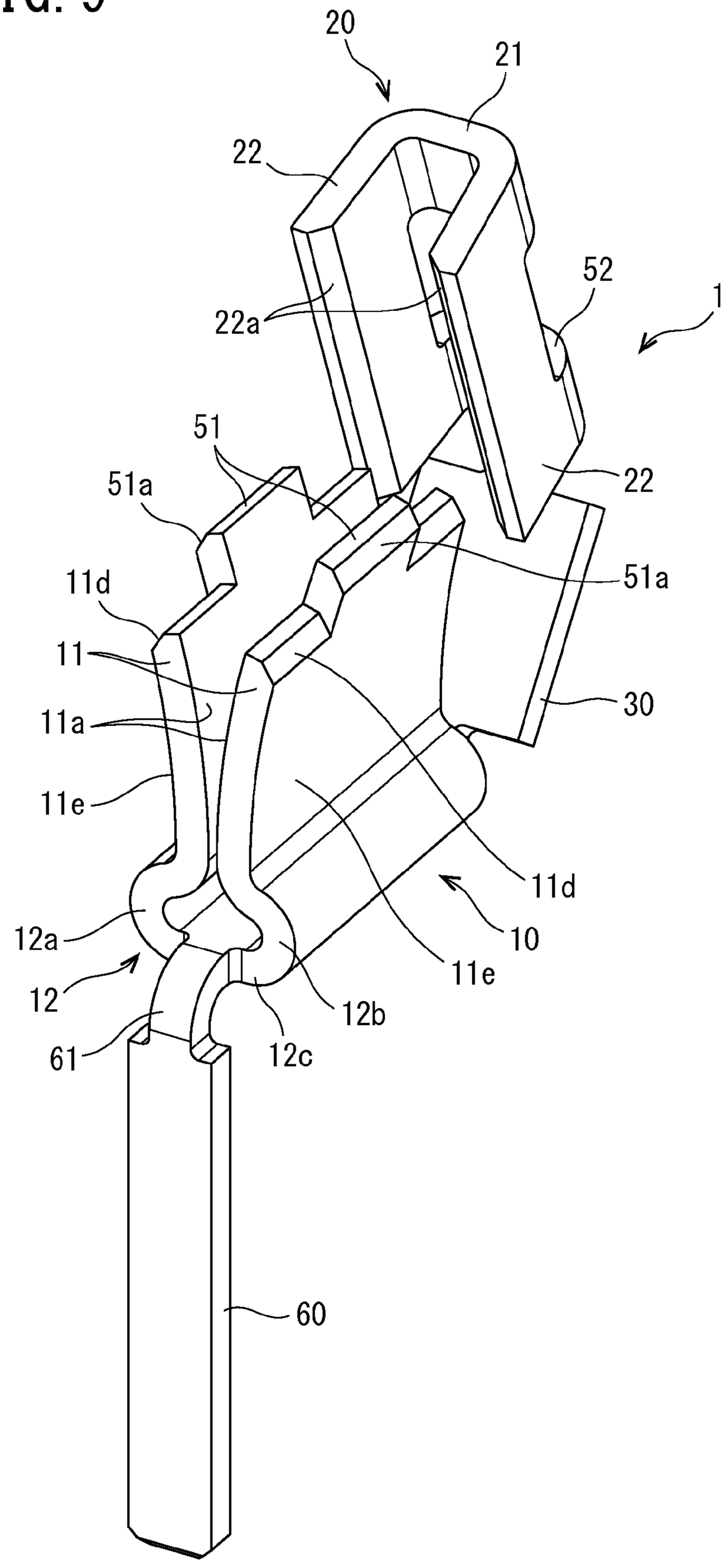


FIG. 9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12b
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12c
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FIG. 10

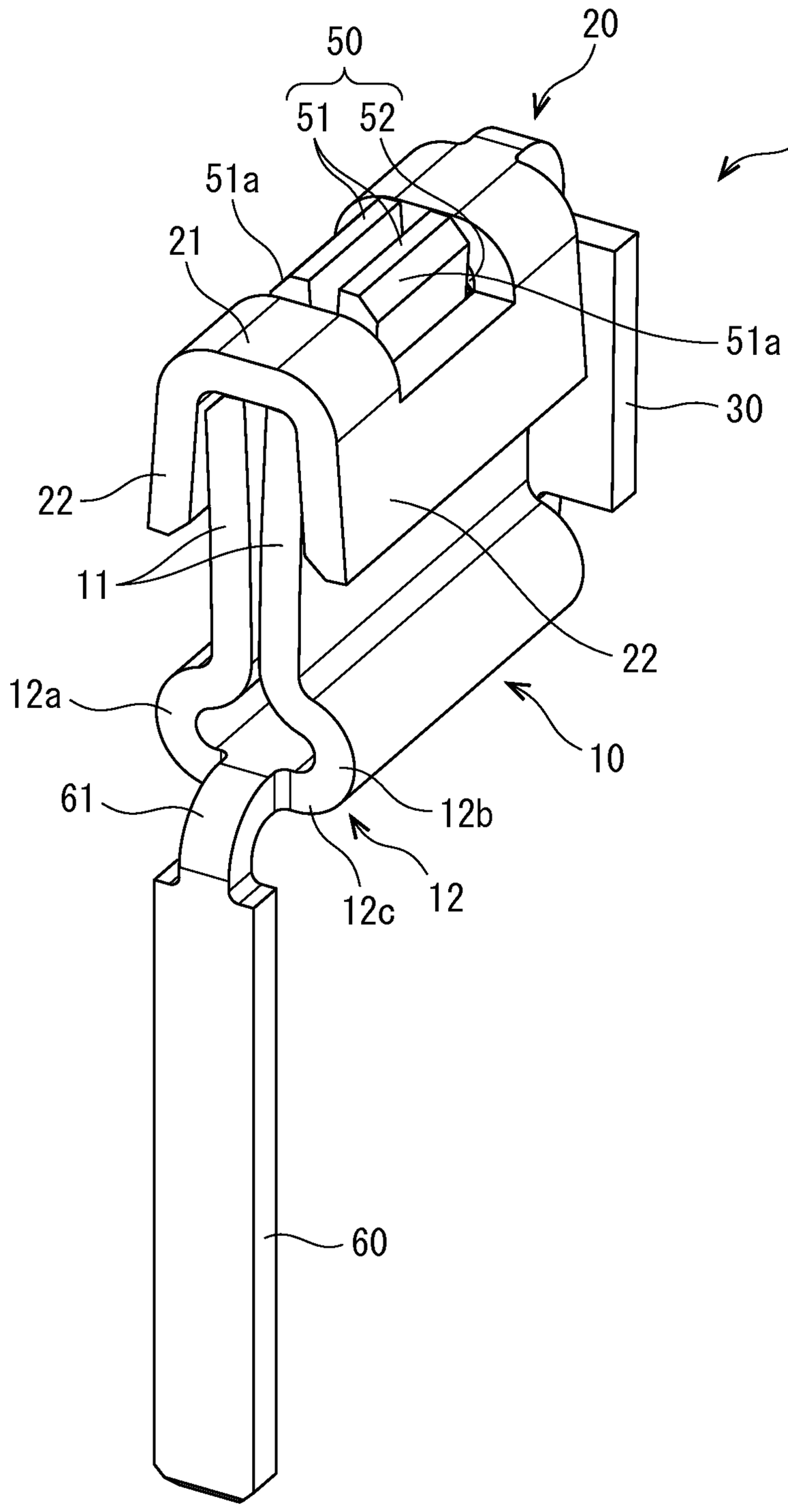


FIG. 11

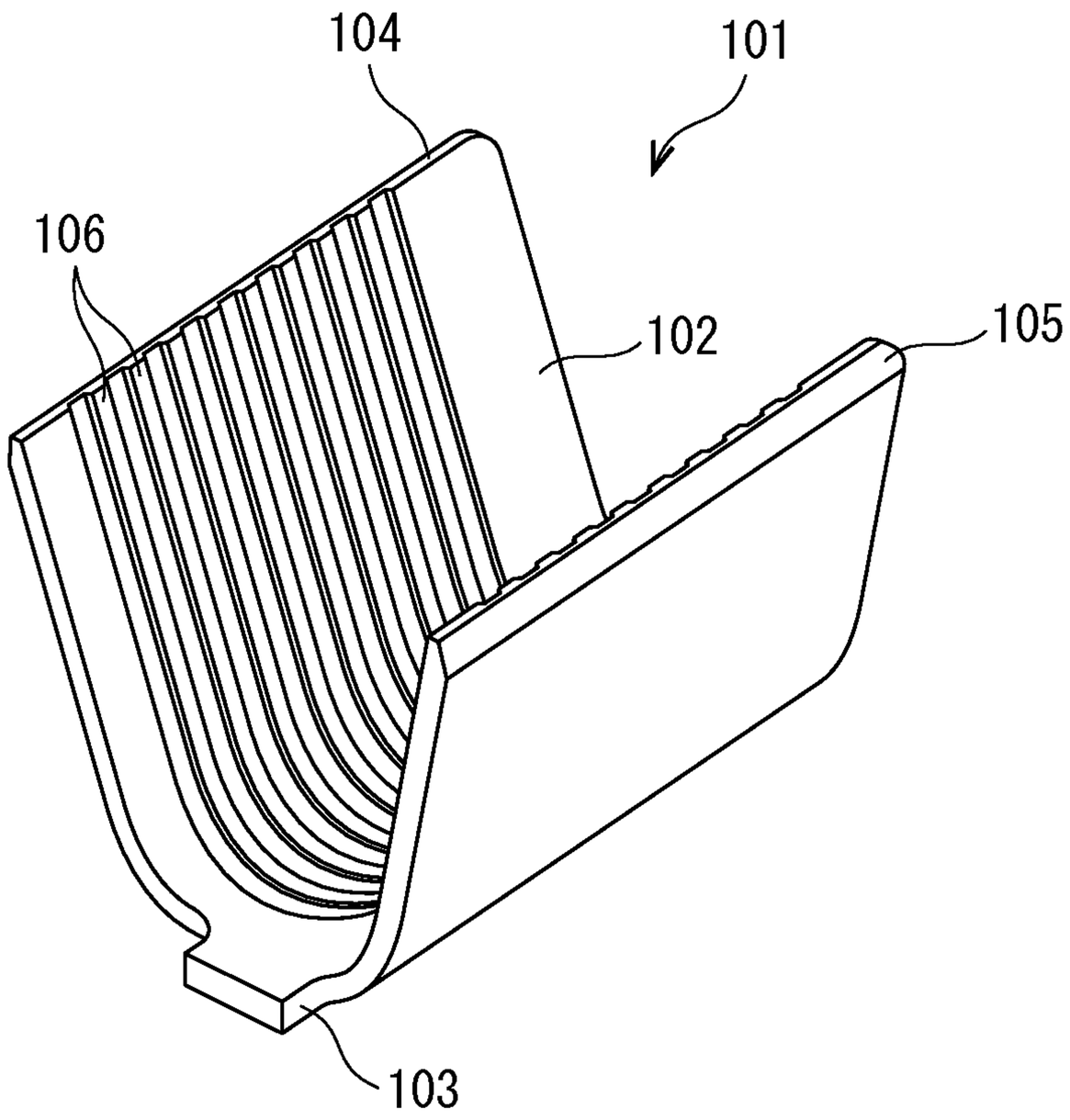


FIG. 12

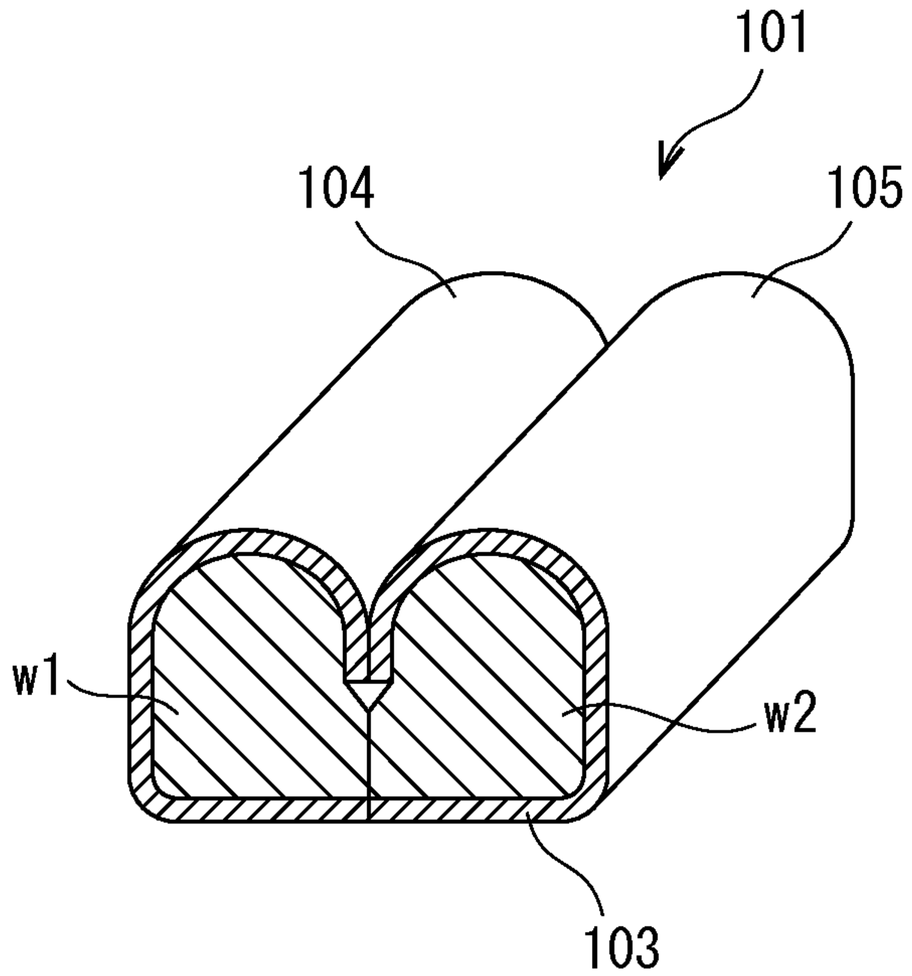
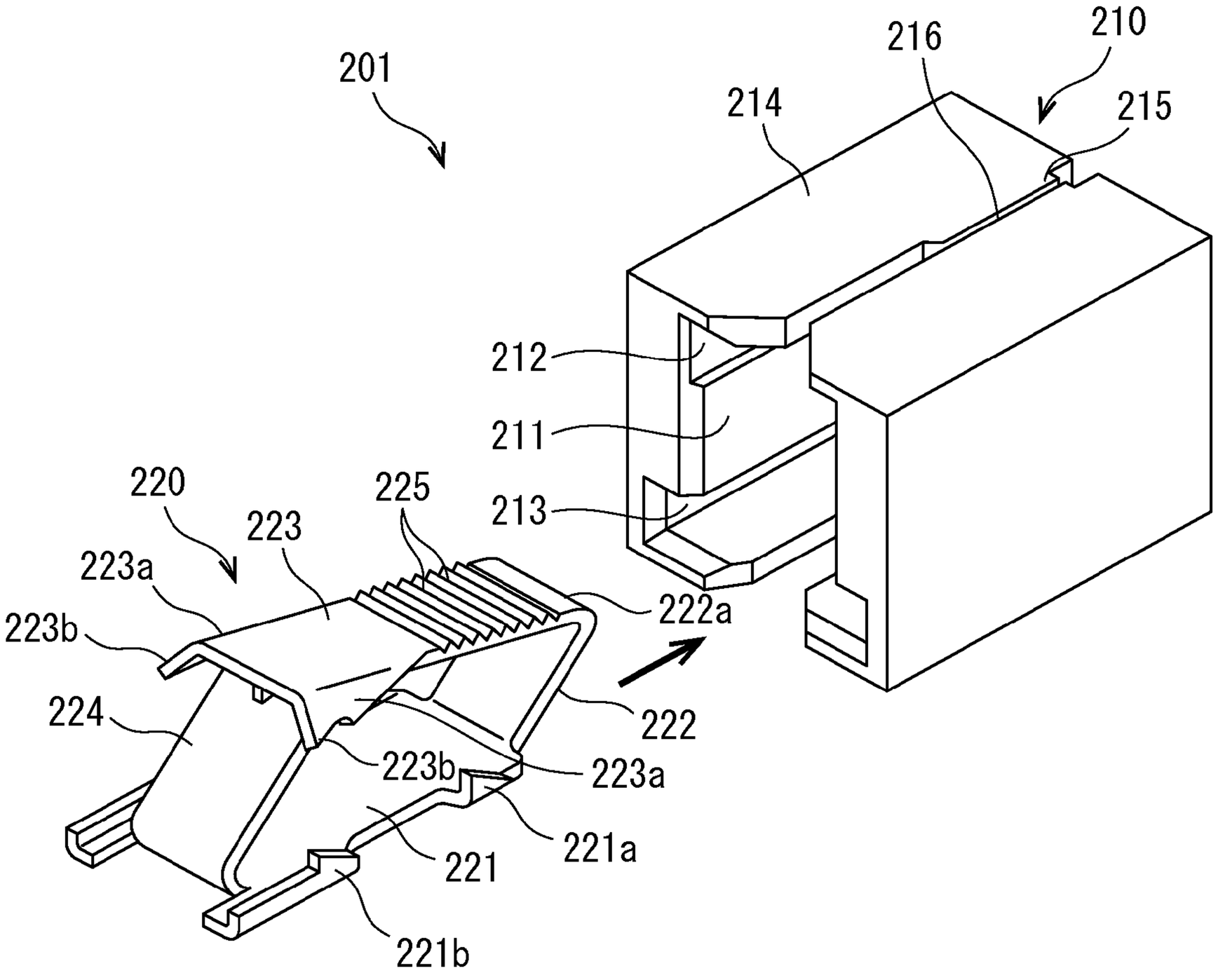


FIG. 13


201
216
210
214
215
212
211
213
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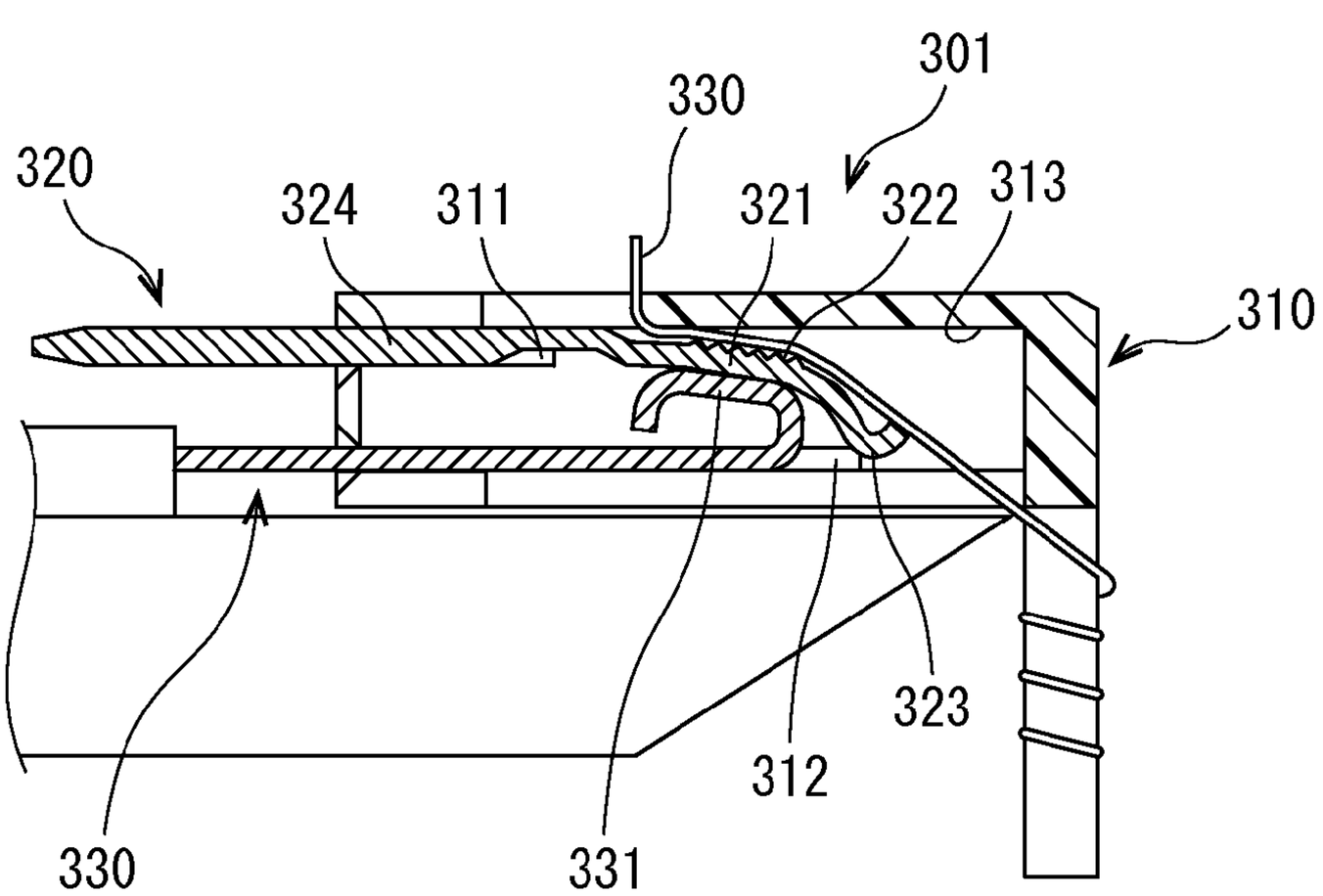
223
225
223a
222a
223b
224
222
223b
223a
221a
221
221b

FIG. 14


301
330
320
324
311
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ELECTRICAL TERMINAL

CROSS-REFERENCE TO RELATED APPLICATIONS

This application claims the benefit of the filing date under 35 U.S.C. §119(a)-(d) of Japanese Patent Application No. 2012-169949 of Jul. 31, 2012.

FIELD OF THE INVENTION

The present invention relates to an electrical terminal and, in particular, to an electrical connector for connection with a thin wire.

BACKGROUND

A known electrical terminal **101** for connection with a wire is disclosed in U.S. Pat. No. 4,003,623 B and shown in FIGS. **11** and **12**.

The known electrical terminal **101** shown in FIG. **11** includes a pair of side walls **104**, **105** that extend from opposite sides of a base **103** and face each other. The shown embodiment is substantially U-shaped and includes a cavity **102** therein. The electrical terminal **101** is made by stamping and forming a metal sheet. The base **103** has an elongated shape for receiving wires W**1** and W**2** (see FIG. **12**). A plurality of serrations **106** are successively positioned from the upper end of the one side wall **104** to the upper end of the other side wall **105** and disposed along the inner surfaces of the pair of side walls **104**, **105** and the base **103**. Hence, the serrations **106** formed on the side wall **104** and the serrations **106** formed on the side wall **105** are opposed each other and extend in the same direction. Each of the serrations **106** extends in a direction perpendicular to a length of the base and a direction in which the wires W**1** and W**2** (see FIG. **12**) extend when positioned in the cavity **102**.

After the two wires W**1** and W**2** are inserted into the cavity **102**, the pair of side walls **104** and **105** are deformed, as shown in FIG. **12**, to crimp the electrical terminal **101** onto the wires W**1** and W**2**. Then, the side wall **104** wraps around the periphery of the wire W**1**, while the side wall **105** wraps around the wire W**2**. In this situation, each serration **106** bites into the wires W**1** and W**2**.

Another known electrical connector **201** for connection with a thin wire like a coil winding is disclosed in Japanese Patent No. JP S52-114987 A, as shown in FIG. **13**

As shown, the known electrical connector **201** includes a housing **210** having a terminal receiving section **211** and an electrical terminal **220** for insertion into the terminal receiving section **211**.

First grooves **212** are disposed along both upper sides of the terminal receiving section **211** of the housing **210**. Second grooves **213** are disposed along both lower sides of the terminal receiving section **211** of the housing **210**. In addition, a wire wound section **215** is provided at a back side of an upper wall **214** of the housing **210**, in order to wind a wire **216** around the wire wound section **215**. The wire **216** is a thin electrical insulated wire of, for example, approximately A.W.G #50 having a metal core and an insulator covering the outer part of the metal core.

On the other hand, the electrical terminal **220** is made by stamping and forming a metal sheet, and includes a base **221** having a substantially rectangular flat plate shape. A plurality of lances **221***a* and **221***b* are positioned along opposites sides of the base **221**. Moreover, the electrical terminal **220** is provided with a front side plate **222** extending obliquely

forward from the front end of the base **221** and a back side plate **224** extending from the back end of the base **221** to be folded back obliquely. A side plate **223** extends in such a manner as to be folded back backward from a tip **222***a* of the front side plate **222**. A plurality of serrations **225** are disposed on the surface of the side plate **223**. The end of back side plate **224** is positioned between a pair of flanges **223***a* positioned at both sides of the side plate **223** and folded downward there from. Lances **223***b* are provided at ends of the pair of flanges **223***a*, respectively.

Then, the electrical terminal **220** is inserted into the terminal receiving section **211** of the housing **210**. Accordingly, the base **221**, the front side plate **222**, the side plate **223**, and the back side plate **224** are inserted into the terminal receiving section **211**. Additionally, the lances **223***b* are pressed into the first grooves **212**, respectively, and the lances **221***a* and **221***b* are pressed into the second grooves **213**, respectively. Moreover, when the tip **222***a* of the front side plate **222** abuts against an end wall, not shown, of the housing **210**, the base **221** is moved in the direction of an arrow, and then the front side plate **222** is turned around a fixed end thereof. Accordingly, each of the serrations **225** formed on the side plate **223** engages the wire **216**.

Furthermore, another example of a known electrical connector for connection with a thin wire like a coil winding is disclosed in Japanese Patent No. JP H10-302857 A, as shown in FIG. **14**.

The known electrical connector **301** shown in FIG. **14** includes a housing **310**, a first terminal **320** press-fitted into a first cavity **311** of the housing **310**, and a second terminal **330** press-fitted into a second cavity **312** of the housing **310**.

The first terminal **320** is made by stamping and forming a metal sheet, and includes a base **324** press-fitted into the first cavity **311**, and a contact part **321** having a gently arcuate shape curved toward a wire receiving surface **313** of the housing **310**. A plurality of serrations **322** are disposed on a surface of the contact part **321** and positioned opposite to the wire receiving surface **313**. A vertex **323** is formed at the end of the first terminal **320** at the contact part **321** side.

Furthermore, the second terminal **330** is made by stamping and forming a metal sheet, and has a pressing part **331** disposed at the tip thereof to press the vertex **323** of the first terminal **320** toward the wire receiving surface **313**.

Then, a wire **330** is disposed between the wire receiving surface **313** and the contact part **321**. When the second terminal **330** is press-fitted, the pressing part **331** of the second terminal **330** presses the vertex **323** of the first terminal **320** toward the wire receiving surface **313**. This permits the contact part **321** of the first terminal **320** to elastically contact with the wire **330**. When the contact part **321** elastically contacts the wire **330**, the serrations **322** formed on the contact part **321** engage the wire **330**. The wire **330** is a thin insulated electrical wire of, for example, approximately A.W.G #50 having a metal core and an insulator covering the outer part of the metal core

Each of the known electrical terminals **101**, **201** and **301** have the following disadvantages.

As for the known electrical terminal **101** shown in FIG. **11** and FIG. **12**, the cavity **102** that receives the wires W**1** and W**2** is large, notably when a thin wire like a coil winding is connected. The pair of side walls **104** and **105** are not completely rounded and some portions remain. This makes it difficult to connect such a thin wire in a stable manner, especially when a single thin wire is connected. Herein, the thin wire denotes a wire having a diameter of for example, approximately 0.02 mm to 0.25 mm.

As for the known electrical connector **201** shown in FIG. **13**, it is difficult to narrow the pitch of the base **221**, the side plate **223**, and the like of the electrical terminal **220** that have a wide width. Furthermore, the housing **210** is necessary in addition to the electrical terminal **220** to connect the wire **216**, thereby posing a problem that the number of component parts is large.

As for the electrical connector **301** shown in FIG. **14**, the wire **301** for connection is the thin insulated electrical wire of, for example, approximately A.W.G #50 including the metal core and the insulator covering the outer part of the metal core. Therefore, stable connection can be achieved when the thin wire like the coil winding is connected. However, the housing **310** is necessary in addition to the first and second terminals **320** and **330** to connect the wire **301**, thereby posing a problem that the number of component parts is large.

SUMMARY

Accordingly, the present invention has been made in view of the aforementioned disadvantages and shortcoming, and it is an object of the present invention, among others to provide having a first member and a second member. The first member includes a pair of connecting face portions, a coupling portion, and a plurality of serrations. The pair of connecting face portions face each other in a substantially V shape such that a gap between inner faces of the pair of connecting face portions gradually becomes smaller from a wider-gap side to a narrower-gap side. The coupling portion connects the pair of connecting face portions at ends of the narrower-gap side of the inner faces. The plurality of serrations are disposed on the pair of inner faces and extend along intersecting directions. The second member has a substantially U shape that mates with the pair of connecting face portions and can displace outer side faces of the pair of connecting face portions inward to urge the inner faces closer to each other.

BRIEF DESCRIPTION OF THE DRAWINGS

The objects, features and advantages of the invention will become more apparent by describing in detail embodiments thereof with reference to the accompanying drawings, in which:

FIG. **1** is a perspective view of an electrical terminal according to the invention;

FIG. **2** is a perspective view of the electrical terminal shown in FIG. **1**, showing a second member mated with a first member after a wire is inserted into the first member;

FIG. **3** is a front view the electrical terminal according to the present invention and a state before the second member is mated with the first member;

FIG. **4** is a front view of the electrical terminal according to the invention when the second member is mated with the first member after the wire is inserted into the first member;

FIG. **5** is a right side view the electrical terminal according to the invention and before the second member is mated with the first member;

FIG. **6** is a right side view of the electrical terminal according to the invention and after the second member is mated with the first member after the wire is inserted into the first member;

FIG. **7**A is a schematic diagram showing a wire being connected with the pair of connecting face portions;

FIG. **7**B is a schematic diagram showing the wire in FIG. **7**A being connected with the pair of connecting face portions;

FIG. **7**C is a schematic diagram showing the wire of FIG. **7**B being connected with the pair of connecting face portions and a plurality of serrations intersecting with each other;

FIG. **8**A is a partial front view of the wire of FIG. **7**A that was connected with the pair of connecting face portions;

FIG. **8**B is a partial plan view of the wire of FIG. **7**A that was connected with the pair of connecting face portions;

FIG. **8**C is a cross-sectional view taken along a line **8**C-**8**C in FIG. **8**A;

FIG. **9** is a perspective view another electrical terminal according to the invention and before a second member is mated with a first member;

FIG. **10** is a perspective view the electrical terminal shown in FIG. **9** after the second member is mated with the first member;

FIG. **11** is a perspective view of a known electrical terminal;

FIG. **12** is an schematic diagram showing two wires that are connected with the known electrical terminal shown in FIG. **11**;

FIG. **13** is a perspective view of another known electrical connector; and

FIG. **14** is a cross-sectional view of another known electrical connector.

DETAILED DESCRIPTION OF THE EMBODIMENT(S)

Hereinafter, embodiments of the present invention will be described with reference to the drawings.

With reference to FIGS. **1** through **6**, an electrical terminal **1** according to the invention will be described. A thin wire **40**, such as a coil winding, is connected to the electrical terminal **1**. The thin wire **40** is, for example, an electrical insulated wire having a metal core and an insulator covering the outer part of the metal core and having a diameter of approximately 0.02 mm to 0.25 mm, or a metal core having a diameter of approximately 0.02 mm to 0.25 mm. An example of the electrical insulated wire is a magnet wire. Hereinafter, an example of the magnet wire used as the wire **40** will be described.

The electrical terminal **1** shown in FIG. **1** to FIG. **6** is made by stamping and forming a metal sheet and includes a first member **10**, a second member **20**, and a coupling member **30** for coupling the first member **10** with the second member **20**.

The first member **10** includes a pair of connecting face portions **11** and a coupling portion **12** that connects the pair of connecting face portions **11**.

The pair of connecting face portions **11** face with each other, and are formed in a substantially V shape, in the embodiment shown, such that a gap between inner faces **11***a* facing with each other is gradually smaller from a wider-gap side to a narrower-gap side. Each connecting face portion **11** is plate shapes. Upper ends of the pair of connecting face portions **11** have a wider gap between the inner faces **11***a* that the lower ends of the pair of connecting face portions **11**, which have a narrower gap there between. As shown in FIG. **3**, as to the gaps between the inner faces **11***a* of the pair of connecting face portions **11** facing with each other, a width d**1** represents a wider-gap side and a width d**2** represents a narrower-gap side. The width d**1** is set to be larger than the diameter of the wire **40**, whereas the width d**2** is set to be smaller than the diameter of the wire **40**. Additionally, the pair of connecting face portions **11** are formed in such a manner that the inner faces **11***a* facing with each other are curved outward from the narrower-gap side to the wider-gap side.

The pair of connecting face portions **11** receives the wire **40** from the wider-gap side of the inner faces **11***a* facing with

each other, and hold the wire with the inner faces **11***a* facing with each other. A plurality of serrations **11***b* and **11***c* are provided. In the shown embodiment, the plurality of serrations **11***b* and **11***c* extend in a direction in which the axial line of the received wire **40** extends, i.e., in a direction intersecting with the front-back direction on the inner faces **11***a* of the pair of connecting face portions **11** facing with each other. As shown in FIG. **7**A, FIG. **7**B, and FIG. **7**C, the plurality of serrations **11***b* and **11***c* are disposed along the inner faces **11***a* of the pair of connecting face portions **11** facing with each other extend in directions intersecting with each other.

The coupling portion **12** connects the pair of connecting face portions **11** at the ends of the narrower-gap side, which is the lower ends, of the inner faces **11***a* facing with each other. As illustrated in FIG. **3**, the coupling portion **12** includes a first curved portion **12***a* curved outward from the lower end of one of the pair of connecting face portions **11**, a second curved portion **12***b* curved outward from the lower end of the other of the connecting face portion **11**, and a connecting portion **12***c* for connecting the end of the first curved portion **12***a* with the end of the second curved portion **12***b*.

Moreover, the second member **20** is substantially U shaped in the shown embodiment. The second member **20** includes a flat plate portion **21** having a substantially rectangular shape that extends in the front-back direction, and a pair of side plates **22** extending downward from both ends of the flat plate portion **21** in the width direction. As shown in FIG. **4** and FIG. **6**, the second member **20** is mated with the pair of connecting face portions **11** from the wider-gap side of the inner faces **11***a* of the pair of connecting face portions **11** facing with each other. The pair of side plates **22** of the second member **20** displaces inward both outer side faces **11***e* of the pair of connecting face portions **11** to urge the inner faces **11***a* of the pair of connecting face portions **11** facing with each other closer together. Accordingly, the plurality of serrations **11***b* and **11***e* engage the wire **40**, and the wire **40** is connected with the pair of connecting face portions **11**.

Tapered portions **11***d* and **22***a* for guiding each other are respectively arranged on the outer faces of the ends of the pair of connecting face portions **11** on the wider-gap side of the inner faces **11***a* facing with each other, and on the inner faces of the ends of the pair of side plates **22** of the second member **20**.

In the shown embodiment, the coupling member **30** is substantially rectangular flat plate, and is connected to the connecting portion **12***c* of the coupling portion **12** through a first coupling piece **31** coupled with the lower end of the flat plate, and is also coupled with the flat plate portion **21** of the second member **20** through a second coupling piece **32** coupled with the upper end of the flat plate.

A method of connecting the wire **40** with the electrical terminal **1** configured as described above will be described with reference to FIGS. **1** to **7**.

Firstly, as shown in FIG. **1**, FIG. **3** and FIG. **5**, the second member **20** is spaced apart from the first member **10**, and the wire **40** is inserted from the wider-gap side of the inner faces **11***a* of the pair of connecting face portions **11** facing each other. Accordingly, the wire **40** is secured between the inner faces **11***a* of the pair of connecting face portions **11**. As to the gap between the inner faces **11***a*, d**1** represents the gap of the wider-gap side and d**2** represents the gap of the narrower-gap side. Moreover, since the width d**1** of the wider-gap side is larger than the diameter of the wire **40**, it is possible to insert the wire **40** with ease from the wider-gap side of the inner faces **11***a* of the pair of connecting face portions **11** facing with each other. Furthermore, since the width d**2** of the narrower-gap side is set to be smaller than the diameter of the wire **40**, it is possible to hold the wire **40** with certainty between the inner faces **11***a* of the pair of connecting face portions **11** facing with each other.

Next, as illustrated in FIG. **2**, FIG. **4** and FIG. **6**, the second member **20** is mated with the pair of connecting face portions **11** from the wider-gap side of the inner faces **11***a*. Then, the inner side faces of the pair of side plates **22** displace both outer side faces **11***e* of the pair of connecting face portions **11** inward. In more detail, while the inner side faces of the pair of side plates **22** move downward, the inner side faces push the upper-end outer side faces **11***e* of the pair of connecting face portions **11** inward. Accordingly, both outer side faces **11***e* displace in such a manner as to rotate inward around the lower ends (the ends on the narrower-gap side) of the pair of connecting face portions **11**. As a result, the inner faces **11***a* of the pair of connecting face portions **11** rotate inward around the lower ends of the pair of connecting face portions **11**, and are urged closer to each other. This causes the plurality of serrations **11***b* and **11***c* formed on the inner faces **11***a* bite into the wire **40**, and thus the wire **40** is connected with the pair of connecting face portions **11**. When the plurality of serrations **11***b* and **11***c* bite into the wire **40**, the insulator covering the outer part of the wire **40** is deformed and then the plurality of serrations **11***b* and **11***c* are electrically connected with the metal core of the wire **40**.

In this manner, by mating the second member **20** with the pair of connecting face portions **11** of the first member **10**, the inner faces **11***a* are made to move closer to each other. Accordingly, the plurality of serrations **11***b* and **11***c* bite into the wire **40** to connect the wire **40** with the pair of connecting face portions **11**. Hence, even if the thin wire **40** like a coil winding is connected, it is possible to connect the wire **40** in a stable manner without any remaining portion of the pair of connecting face portions **11**. In particular, this advantage is remarkable when the single thin wire **40** is used for connection. It is noted that when the wire **40** of the same diameter is used for connection, the two wires **40** may be connected.

Moreover, the second member **20** displaces both outer side faces **11***e* inward to make the inner faces **11***a* closer to each other and connect the wire **40** with the pair of connecting face portions **11**. Accordingly, when a plurality of electrical terminals **1** are arranged in a direction in which the pair of connecting face portions **11** face with each other, it is possible to achieve the narrower pitch.

Furthermore, since the wire **40** can be connected only by the first member **10** and the second member **20** constituting the electrical terminal **1**, the wire **40** can be connected using the electrical terminal **1**.

In the shown embodiment, the pair of connecting face portions **11** are formed in such a manner that the inner faces **11***a* are curved outward from the narrower-gap side of the inner faces **11***a* facing with each other to the wider-gap side. Hence, when the inner faces **11***a* of the pair of connecting face portions **11** rotate inward around the lower ends (the ends on the narrower-gap side) of the pair of connecting face portions **11** and come closer to each other, the ends of the inner faces **11***a* on the wider-gap side do not come in contact with each other before the wire **40** is connected. Accordingly, by managing the gap between the ends of the inner faces **11***a* facing with each other on the wider-gap side, it is made possible to determine whether or not the wire **40** is connected.

The tapered portions **11***d* and **22***a* for guiding each other are arranged on the outer faces of the ends of the pair of connecting face portions **11** respectively, on the wider-gap side of the inner faces **11***a*, and on the inner faces of the ends of the second member **20**. Accordingly, when the second

member **20** is mated with the pair of connecting face portions **11** from the wider-gap side of the inner faces **11***a*, mating is accomplished.

Additionally, the plurality of serrations **11***b* and **11***c*, respectively formed on the inner faces **11***a*, extend in directions intersectional to each other, as shown in FIG. **7**A, FIG. **7**B and FIG. **7**C. Accordingly, when the plurality of serrations **11***b* and **11***c* are electrically connected with the metal core of the wire **40**, dents **41** are formed on the wire **40** by the plurality of serrations **11***b*, as shown, the dents **42** intersect to each other, as shown in FIG. **8**A, FIG. **8**B, and FIG. **8**C. When the dents **41** and **42** are arranged to intersect each other, the areas of thinned portions are smaller than that of the case where the dents **41** and **42** are opposed to each other and extend in the same direction. In the shown embodiment, the dents **41** and **42** are arranged to intersect each other, which makes the areas of thinned portions small. Therefore, even if the wire **40** is thin like a coil winding, the wire is hardly disconnected.

In addition, according to the electrical terminal **1**, the coupling portion **12** of the first member **10** and the second member **20** are coupled by the coupling member **30**. This means that the first member **10** and the second member **20** are not separated. Therefore, as there is no possibility that one of the first member **10** and the second member **20** is lost, it is possible to manage the components with ease. Moreover, as the electrical terminal **1** is integrally formed, it is unnecessary to separately manufacture the first member **10** and the second member **20**, and it is possible to produce the electrical terminal **1** at low cost.

Furthermore, the coupling portion **12** includes the first curved portion **12***a* curved outward from the lower end of the one connecting face portion **11**, the second curved portion **12***b* curved outward from the lower end of another connecting face portion **11**, and the connecting portion **12***c* for connecting the end of the first curved portion **12***a* with the end of the second curved portion **12***b*. Hence, it becomes possible to connect the connecting portion **12***c* to a metal carrier strip (not shown) through a coupling piece (not shown). In addition, as the coupling portion **12** includes the first curved portion **12***a* and the second curved portion **12***b*, it is possible to relieve stress along the lower ends of the pair of connecting face portions **11**, when the inner faces **11***a* rotate inward around the lower ends of the pair of connecting face portions **11** and come closer to each other.

Next, an electrical terminal according to another embodiment of the invention will be described with reference to FIG. **9** and FIG. **10**.

The electrical terminal **1** shown in FIG. **9** and FIG. **10** has the same basic structure as that of the electrical terminal **1** shown in FIG. **1** to FIG. **6**. In FIG. **9** and FIG. **10**, the plurality of serrations are not illustrated. However, the electrical terminal **1** shown in FIG. **9** and FIG. **10** differs from the electrical terminal **1** shown in FIG. **1** to FIG. **6** in that a lock **50**, to be locked when the second member **20** is mated with the pair of connecting face portions **11**, is provided on the pair of connecting face portions **11** and the second member **20**.

Herein, the lock **50** includes a pair of locking protrusions **51** formed in a protruding manner at upper-end edges of the pair of connecting face portions **11**, respectively, and a locking opening **52** formed in the flat plate portion **21** of the second member **20**. When the second member **20** is mated with the pair of connecting face portions **11**, the pair of locking protrusions **51** are inserted into the locking opening **52**. A tapered portion **51***a* is disposed on the upper-end outer side face of each of the locking protrusions **51**. This assists insertion of the pair of locking protrusions **51** into the locking opening **52** with ease. Then, when the pair of locking protrusions **51** are inserted into the locking opening **52**, the locking protrusions **51** abut against the edges of the locking opening **52** in the width direction. This prevents the pair of connecting face portions **11** from opening. Therefore, the pair of connecting face portions **11** are prevented from opening when the second member **20** is mated with the pair of connecting face portions **11**. It is thus possible to avoid the wire **40** from being discontinuous.

Moreover, the electrical terminal **1** shown in FIG. **9** and FIG. **10** also differs from the electrical terminal **1** shown in FIG. **1** to FIG. **6** in that a mating portion **60** to be mated with a mating connector (not shown) is disposed at the coupling portion **12** of the first member **10**.

More specifically, in the electrical terminal **1** shown in FIG. **9** and FIG. **10**, the mating portion **60** is tab shaped and connects at the connecting portion **12***c* through a coupling piece **61**. The mating portion **60** is folded downward through the coupling piece **61**, and is configured to be mated with an electrical terminal (not illustrated) of the mating connector.

Although the exemplary embodiment of the invention has been disclosed for illustrative purposes, those skilled in the art will appreciate that various modifications, additions and substitutions are possible, without departing from the scope and spirit of the invention as disclosed in the accompanying claims.

For example, the inner faces **11***a* facing each other are not necessarily formed to be curved outward from the narrower-gap side of the inner faces **11***a* facing with each other to the wider-gap side.

Moreover, in the electrical terminal **1**, the coupling portion **12** of the first member **10** and the second member **20** may be not connected using the coupling member **30**.

Moreover, in the electrical terminal **1**, it may not necessary that the tapered portions **11***d* and **22***a* that guide respective counterparty members are provided on the outer faces of the ends of the pair of connecting face portions **11** on the wider-gap side of the inner faces **11***a* and on the inner faces of the ends of the second member **20**.

In the electrical terminal **1**, it may not be necessary that the plurality of serrations **11***b* and **11***c* formed on the respective faces **11***a* extend in directions intersecting with each other.

Furthermore, it may not be necessary that the coupling portion **12** includes the first curved portion **12***a*, the second curved portion **12***b*, and the connecting portion **12***c* as long as the coupling portion **12** couples the pair of connecting face portions **11** together.

What is claimed is:

1. An electrical terminal comprising:

a first member having a pair of connecting face portions facing each other in a substantially V shape such that a gap between inner faces of the pair of connecting face portions gradually becomes smaller from a wider-gap side to a narrower-gap side, a coupling portion connecting the pair of connecting face portions at ends of the narrower-gap side of the inner faces, and a plurality of serrations disposed on the pair of inner faces and extending at intersecting directions; and

a second member having a substantially U shape to mate with the pair of connecting face portions from the wider-gap side of the inner faces and displace outer side faces of the pair of connecting face portions inward, urging the inner faces toward each other.

2. The electrical terminal according to claim **1**, wherein the first member includes a wire receiving section disposed between the pair of connecting face portions.

3. The electrical terminal according to claim 1, wherein the inner faces extend outward from the narrower-gap side to the wider-gap side of the inner faces.

4. The electrical terminal according to claim 3, wherein the inner faces curve outward from the narrower-gap side to the wider-gap side.

5. The electrical terminal according to claim 1, wherein the coupling portion and the second member are coupled by a coupling member.

6. The electrical terminal according to claim 1, further comprising first tapered portions disposed on outer faces of the ends of the pair of connecting face portions.

7. The electrical terminal according to claim 6, further comprising second tapered portions disposed on an inner surface of the second member to engage the first tapered portions.

8. The electrical terminal according to claim 1, wherein the coupling portion includes a first curved portion that curves outward from an end of a first face portion of the pair of connecting face portions.

9. The electrical terminal according to claim 8, wherein the coupling portion further includes a second curved portion that curves outward from an end of a second face portion of the pair of connecting face portions.

10. The electrical terminal according to claim 9, wherein the coupling portion further includes a connecting portion connecting the end of the first curved portion with the end of the second curved portion.

11. The electrical terminal according to claim 1, further comprising a lock disposed on the pair of connecting face portions and on the second member securing the first member and the second member when the second member is mated with the pair of connecting face portions.

12. The electrical terminal according to claim 11, wherein the lock includes a pair of locking protrusions disposed along upper-end edges of the pair of connecting face portions and a locking opening disposed along the second member.

13. The electrical terminal according to claim 12, further comprising a tapered portion disposed on each upper-outer side face of each of the pair of locking protrusions.

14. The electrical terminal according to claim 1, wherein the coupling portion includes a mating portion to be mated with a mating connector.

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